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# The Innovators

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**The Innovators,” a periodic newsletter from IDEA Corporation, is about people: people with exciting ideas for new products and processes; people working in Ontario’s research laboratories and businesses; people whose new ideas are being taken to the marketplace, with the help of IDEA Corporation.**

**In this inaugural issue of “The Innovators,” we introduce Dr. Adolfo de Bold from Queen’s University, Kingston, Ontario.**

## DR. DE BOLD’S DISCOVERY

As a pathology graduate student in the late 1960s, Dr. Adolfo de Bold followed up on research describing the presence of an unknown granular material in the heart tissue of man and other mammals. He began exploring the composition and purpose of this substance, and without realizing it, launched what became a 15-year research project.

After countless experiments, de Bold concluded that this unknown material had a connection with the function of the kidneys.

To test this assumption, rat hearts were chemically treated to produce a raw extract that was injected into other rats. The results were astounding. Within seconds, blood pressure was lowered and increased amounts of water and salt began excreting from the animals’ kidneys.

Excited by the effect the substance had on animals, the next goal for de Bold and his co-workers was to identify, through a chemical process, the “active” components that produced the diuretic effect.

## THE MYSTERY IS SOLVED

After several experiments, de Bold identified four active substances. They proved to be peptides, or small proteins. This added to



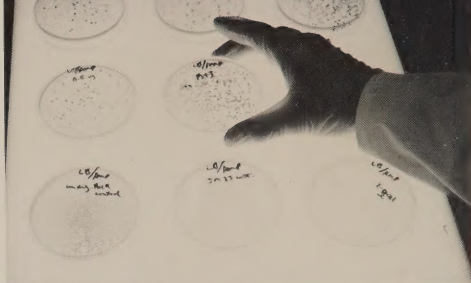
Dr. A.J. de Bold,  
Queen’s University

de Bold’s earlier speculations that the heart works not only as a pump, but produces a group of substances that induces the kidneys to excrete water and salt, while lowering blood pressure. Now that the substances were identified, he named them “cardionatrin” (*Kardia* meaning heart in Greek and *natrin*, the Latin word for sodium).

According to Dr. de Bold, “The heart seems to keep track of the volume of blood coming into it. When it senses too much coming in, it sends a chemical signal, in the form of cardionatrin, to the kidneys to eliminate excess water and salt.”



**“As a natural diuretic, cardionatrin appears to have immense implications for the health care and pharmaceutical industries.”**



## PURIFYING CARDIONATRINS

The nature of cardionatrin had been identified. Now de Bold faced one of his greatest challenges: to define the details of their chemical structure. It was soon realized that more sophisticated time-saving equipment would be needed to keep his work competitive.

## IDEA'S CONTRIBUTION

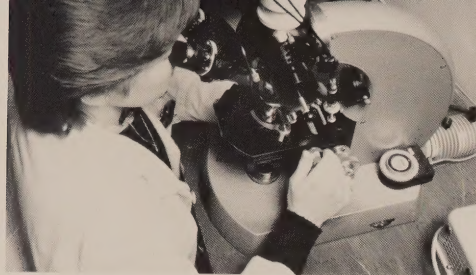
IDEA Corporation recognized the importance of the cardionatrin discovery and its major potential for further development as a com-

mercial pharmaceutical product. To support Dr. de Bold's research, IDEA committed up to \$800,000 from its Research Investment Fund in return for a share of the net royalties from eventual commercial licensing of the product.

A portion of the money IDEA made available to Dr. de Bold has been used to purchase a highly sophisticated protein sequencer. This instrument can analyze microgram amounts of the substance: samples so small they are invisible to the naked eye.

With the aid of the protein sequencer, de Bold's co-worker, Dr. T.G. Flynn, has been able to explain the chemical structure of one type of cardionatrin. IDEA's contribution has also made it possible for two other members of the team, Drs. P.L. Davies and J.C.C. Roder,





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to develop fully the commercial potential of the cardionatrin discovery.

## **THE PROMISE OF SIGNIFICANT BENEFITS**

As a natural diuretic, cardionatrin appears to have immense implications for the health care and pharmaceutical industries.

Knowledge of the chemical structure of cardionatrin is of commercial value. The pharmaceutical industry is interested in the peptide as a model to synthesize new diuretic drugs.

As a natural substance, cardionatrin has several benefits, not apparent in artificial diuretics:

- There are fewer adverse side effects.
- It is several times more powerful than any artificial diuretic on the market.
- It will help medical researchers understand why people with certain diseases retain large quantities of fluid since an abnormal balance of water and salt is common in congestive heart failure, kidney and liver disorders and high blood pressure.
- Loss of potassium is less than through the use of artificial diuretics.

Queen's University principal, Ronald Watts, sums up Dr. de Bold's recent attention in the international medical community this way, "It is, frankly, very gratifying to see a Canadian researcher and a Canadian university recognized around the world as the discoverer of a major new scientific development."



## IDEA AND INNOVATION CENTRE ANNOUNCE AGREEMENT TO ASSIST INVENTORS

**I**DEA Corporation and the Canadian Industrial Innovation Centre/Waterloo signed a co-operative agreement on May 7, 1984 to help independent inventors commercialize their innovations.

For a nominal cost of \$125, inventors are encouraged to submit their invention to the Innovation Centre for a preliminary assessment of the critical factors necessary for commercial success. The Centre provides the inventor with a confidential report of the findings.

Under the renewable one-year agreement, between IDEA and the Centre, those who receive a favorable report will be encouraged to apply to IDEA for funding of the Centre's confidential "Custom Evaluation." Normally, private inventors are charged \$500 for this custom evaluation. It consists of a search of similar patents, consultation with experts in the field of the invention and a comprehensive report outlining a recommended development plan. This service actually costs the Centre about \$1,500, but substantial support is provided by the federal government.

If IDEA approves the inventor's application to finance the Innovation Centre's custom evaluation, IDEA will receive a right of first refusal on financing the commercial development of the invention. The Centre will have an opportunity to participate with IDEA and the inventor in these future financial arrangements.

IDEA Corporation's President, Brian St. John, said, "IDEA is pleased to be working with the Innovation Centre, as both organizations are in the business of advancing the role of the innovator in Ontario's economy. We have been impressed with the performance of the Centre, and this agreement contributes to its further development as a centre of excellence for the evaluation of inventions."



Jim McPherson (l.), Chief Executive Officer, Canadian Industrial Innovation Centre/Waterloo and Brian St. John, President, IDEA Corporation (r.) signing co-operative agreement to assist inventors.

"Financing past the initial assessment phase of an invention has often held back entrepreneurs from pursuing their idea further," said Jim McPherson, Chief Executive Officer of the Innovation Centre. "The agreement with IDEA Corporation will provide an opportunity for innovators lacking the funds to pursue their idea from the early stages of development through to commercialization."

The province-wide program is available to Ontario inventors and those willing to advance employment in the province through manufacturing and marketing of their innovations.

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